

CLAIMS

What is claimed is:

1. A method for identifying topology for RFID deployment comprising:
5 receiving spatial parameters of an area operable for RFID management;
identifying attributes of a transceiver operable within the area for RFID
management, the transceiver operable for communication with a plurality of
transponders; and
determining a location for disposing each a plurality of the transceivers within the
10 area, determining further comprising:
computing, based on the identified attributes, a readability zone for each
of the plurality of transponders indicative of readability by a transceiver; and
calculating, based on the readability zone and the spatial parameters,
placement for each of the transceivers within the area, the calculated placement
15 providing transponder coverage within the area.
2. The method of claim 1 wherein computing the readability zone further comprises:
identifying spatial modifiers for a particular transceiver;
applying the identified spatial modifiers to the identified attributes to generate
20 deployment attributes; and
modifying the placement of at least one of the transceivers according to the
generated deployment attributes.
3. The method of claim 1 wherein the identified attributes further include a range,
25 and computing the readability zone includes identifying a reflection from the transponder,
further comprising:
adjusting the readability zone based on an interference effect from the type of
transponder coverage material; and
adjusting the placement of the transponder according the adjusted readability zone
30 and a resulting effect on the range.

4. The method of claim 1 further comprising:

identifying a plurality of locations in the area, each of the locations having a corresponding transceiver;

5 disposing each of the transponders in a particular location, each of the transponders appurtenant to a predetermined object; and

disposing the corresponding transceiver in each of the identified locations, the transceivers disposed in communication with the transponders disposed in that location.

5. The method of claim 4 wherein disposing the transceivers further comprises:

10 computing the zone of readability for each of the transponders, and

identifying the locations to include the transponders, each of the transponders in communication with at least one of the transceivers

6. The method of claim 1 further comprising:

15 aggregating, for a plurality of transponders, the readability zone of each of the transponders;

demarcating a location so as to maximize inclusion of the zone of readability of each of the transponders in the demarcated location; and

20 disposing the transceiver corresponding to the location such that the transceiver is in the zone of readability for a substantial maximum of the transponders in the location.

7. The method of claim 6 further comprising:

identifying a plurality of locations, each location associated with one or more other locations; and

25 identifying portals connecting one location to another location, the portals defining relations between the locations.

8. The method of claim 1 further comprising defining the spatial parameters to include:

30 an outer perimeter boundary of the area,
locations defined as portions of the area;

adjacency of each of the locations to other locations; and
physical impediments within the area operable to modify the zone of readability
of at least one of the transceivers.

5 9. The method of claim 1 further comprising arranging a plurality of transceivers
such that:

each of the transceivers is disposed in a readability zone corresponding a
substantial maximum of transponders;

a substantial minimum number of transceivers are disposed in the area; and

10 substantially all of the transponders have at least one transceiver in the
corresponding zone of readability.

10. The method of claim 1 further comprising:

receiving information concerning the readability zone, spatial parameters, and

15 transponder attributes;

aggregating the received information to compute coverage information indicative
of transceivers operable to be disposed in the readability zone of each of the
transponders; and

determining placement of transceivers within the area according to the readability
20 zone of each of the transceivers augmented by the aggregated information.

11. The method of claim 10 wherein the received information is transmitted in a
predetermined format, the predetermined format adapted to represent an arbitrary
arrangement of transceivers, transponders, and areas, further comprising:

25 displaying the aggregated information to a user in a graphical format, the
graphical format operable to illustrate the augmented readability zone for each of the
transponders; and

interactively selecting placement of each of the transceivers within the area, the
placement operable to generate feedback indicative of transponders having a particular
30 transceiver in the corresponding readability zone.

12. The method of claim 1 further comprising:

identifying a particular location and corresponding transceiver;

identifying transponders readable by the transceiver;

identifying an adjacent location operable to be accessed from the particular

5 location;

identifying the transceiver corresponding to the adjacent location; and

defining an alert corresponding to detection of an identified transponder being
disposed from the particular location to the adjacent location.

10 13. The method of claim 1 further comprising defining a trigger corresponding to the
alert, the trigger operable to invoke an automated responsive action to the alert.

14. A computing device for identifying topology for RFID deployment comprising:

a memory operable to store instructions and data;

15 a processor operable to perform the instructions on the data;

an interface operable to receive the data and send results of performing the
instructions, the interface further operable to receiving spatial parameters of an area
operable for RFID management;

the instructions operable to employ the data for identifying attributes of a
20 transceiver operable within the area for RFID management, the transceiver operable for
communication with a plurality of transponders; and

the processor further operable to determine a location for disposing each a
plurality of the transceivers within the area, determining further comprising:

25 computing, based on the identified attributes, a readability zone for each
of the plurality of transponders indicative of readability by a transceiver; and

calculating, based on the readability zone and the spatial parameters,
placement for each of the transceivers within the area, the calculated placement
providing transponder coverage within the area.

30 15. The computing device of claim 14 wherein the processor is further operable to
compute the readability zone by:

identifying spatial modifiers for a particular transceiver;
applying the identified spatial modifiers to the identified attributes to generate
deployment attributes; and
modifying the placement of at least one of the transceivers according to the
5 generated deployment attributes.

16. The computing device of claim 14 wherein the identified attributes further include
a range, and the processor is further operable to compute the readability zone by:

identifying a reflection from the transponder;

10 adjusting the readability zone based on an interference effect from the type of
transponder coverage material; and

adjusting the placement of the transponder according the adjusted readability zone
and a resulting effect on the range.

15 17. The computing device of claim 14 wherein the instructions are further operable
to:

identify a plurality of locations in the area, each of the locations having a
corresponding transceiver;

specify disposing each of the transponders in a particular location, each of the
20 transponders appurtenant to a predetermined object; and

specify disposing the corresponding transceiver in each of the identified locations,
the transceivers disposed in communication with the transponders disposed in that
location.

25 18. The computing device of claim 17 wherein the instructions are further operable
to:

specify disposing the transceivers further comprises: computing the zone of
readability for each of the transponders, and

identify the locations to include the transponders, each of the transponders in
30 communication with at least one of the transceivers

19. The computing device of claim 14 wherein the processor is further operable to:
aggregate, for a plurality of transponders, the readability zone of each of the
transponders;

demarcate a location so as to maximize inclusion of the zone of readability of
5 each of the transponders in the demarcated location; and

indicate disposing the transceiver corresponding to the location such that the
transceiver is in the zone of readability for a substantial maximum of the transponders in
the location.

10 20. The computing device of claim 19 wherein the processor is further operable to:
identify a plurality of locations, each location associated with one or more other
locations; and

identify portals connecting one location to another location, the portals defining
relations between the locations.

15 21. The computing device of claim 14 wherein the processor is further operable to
define the spatial parameters to include:

an outer perimeter boundary of the area;

locations defined as portions of the area;

20 adjacency of each of the locations to other locations; and

physical impediments within the area operable to modify the zone of readability
of at least one of the transceivers.

22. The computing device of claim 14 wherein the instructions are further operable to
25 indicate arranging a plurality of transceivers such that:

each of the transceivers is disposed in a readability zone corresponding a
substantial maximum of transponders;

a substantial minimum number of transceivers are disposed in the area; and

substantially all of the transponders have at least one transceiver in the
30 corresponding zone of readability.

23. The computing device of claim 14 wherein the interface is further operable to receive information concerning the readability zone, spatial parameters, and transponder attributes, and the processor is further operable to:

aggregate the received information to compute coverage information
5 indicative of transceivers operable to be disposed in the readability zone of each of the transponders; and

determine placement of transceivers within the area according to the readability zone of each of the transceivers augmented by the aggregated information.

10 24. The computing device of claim 23 wherein the received information is transmitted in a predetermined format, the predetermined format adapted to represent an arbitrary arrangement of transceivers, transponders, and areas, wherein the processor is further operable to:

15 display the aggregated information to a user in a graphical format, the graphical format operable to illustrate the augmented readability zone for each of the transponders; and

interactively select placement of each of the transceivers within the area, the placement operable to generate feedback indicative of transponders having a particular
20 transceiver in the corresponding readability zone.

25 25. The computing device of claim 14 wherein the processor is further operable to:

identify a particular location and corresponding transceiver;

identify transponders readable by the transceiver;

25 identify an adjacent location operable to be accessed from the particular location;

identify the transceiver corresponding to the adjacent location; and

define an alert corresponding to detection of an identified transponder being disposed from the particular location to the adjacent location.

26. The computing device of claim 14 wherein the processor is further operable to define a trigger corresponding to the alert, the trigger operable to invoke an automated responsive action to the alert.

5 27. A computer program product having a computer readable medium operable to store computer program logic embodied in computer program code encoded thereon for identifying topology for RFID deployment comprising:

computer program code for receiving spatial parameters of an area operable for RFID management;

10 computer program code for identifying attributes of a transceiver operable within the area for RFID management, the transceiver operable for communication with a plurality of transponders; and

computer program code for determining a location for disposing each a plurality of the transceivers within the area, determining further comprising:

15 computing, based on the identified attributes, a readability zone for each of the plurality of transponders indicative of readability by a transceiver; and

calculating, based on the readability zone and the spatial parameters, placement for each of the transceivers within the area, the calculated placement providing transponder coverage within the area.

20 28. A computer data signal having program code for identifying topology for RFID deployment comprising:

program code for receiving spatial parameters of an area operable for RFID management;

25 program code for identifying attributes of a transceiver operable within the area for RFID management, the transceiver operable for communication with a plurality of transponders; and

program code for determining a location for disposing each a plurality of the transceivers within the area, determining further comprising:

30 computing, based on the identified attributes, a readability zone for each of the plurality of transponders indicative of readability by a transceiver; and

calculating, based on the readability zone and the spatial parameters,
placement for each of the transceivers within the area, the calculated placement
providing transponder coverage within the area.

- 5 29. An information processing device for identifying topology for RFID deployment
comprising:
- means for receiving spatial parameters of an area operable for RFID management;
 means for identifying attributes of a transceiver operable within the area for RFID
management, the transceiver operable for communication with a plurality of
- 10 transponders; and
- means for determining a location for disposing each a plurality of the transceivers
within the area, determining further comprising:
- computing, based on the identified attributes, a readability zone for each
of the plurality of transponders indicative of readability by a transceiver; and
- 15 calculating, based on the readability zone and the spatial parameters,
placement for each of the transceivers within the area, the calculated placement
providing transponder coverage within the area.